



U. S. FOREST SERVICE
R-6

INTERMOUNTAIN STATION
Control Reference File
No. 3. 4143-72

3400
Portland, Oregon
November 1964

EVALUATION OF WESTERN HEMLOCK LOOPER LARVAL POPULATIONS
WITHIN THE 1962 CONTROL PROJECT BOUNDARIES AT
CLATSOP COUNTY, OREGON IN AUGUST 1964

by

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In July 1962, 32,531 acres of western hemlock were sprayed with 1/2 lb. of DDT per acre in an attempt to reduce western hemlock looper larval populations below the tree-killing level. Although larval mortality averaged 88 percent for the project, some moderate looper populations remained.^{1/} A check in 1963 revealed that larvae were present in the control area at or slightly below the post-control level.^{2/}

In August 1964, the control project area was visited and several plots sampled for presence of looper larvae. Since a limited amount of time was available, only 6 of the 24 plots sampled in 1963 were visited. At each plot ten beatings were made of understory plants instead of the five per plot taken in 1963. At plot 12, trees were sampled using aluminum pole pruners to remove branches for examination.

RESULTS

Looper populations were less in 1964 than in 1963. Number of larvae collected from ten beatings of understory foliage in 1964 was significantly less than that collected from five beatings in 1963 ($p=0.05$, table 1).

^{1/} Buffam, P.E., 1963. Summarization report of the technical aspects of the 1962 western hemlock looper control project at Astoria, Oregon, U.S. Forest Service, Region 6, 19 pp.

^{2/} Buffam, P.E., 1964. Evaluation of western hemlock looper larval populations within the 1962 control project boundaries at Clatsop County, Oregon in August 1963. U.S. Forest Service, Region 6, 8 pp.

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Collections were confined mainly to red whortleberry, ovalleaf whortleberry and western hemlock--species on which large numbers of loopers were found previously. In 1963, many larvae were found on stink currant when it was present, but very few larvae were collected on this species in 1964. In 1963, one of the highest larval counts in standing trees was obtained on plot 13. This year only seven larvae were collected on five trees, while 56 were taken in 1963 (table 2).

This year's looper development was slightly behind last year's. Most of the larvae collected in 1964 were in the third and fourth instars of development (66 percent) with 15 percent in the second and 19 percent in the fifth instars. In 1963, less than 5 percent of the larvae were in the second instar, about 80 percent in the third and fourth instars and about 15 percent in the last instar.

No severely defoliated trees were observed during the 1964 larval evaluation. Some trees have been lightly to moderately defoliated for two or three successive years. These trees may either die within the next few years or recover very slowly.

After this year, the western hemlock looper will probably drop to subepidemic levels in the Astoria area. Some larval populations remain in above normal numbers, but these are expected to decrease due to parasites, predators and/or disease.

Table 1.--Comparison of looper larval numbers obtained in
1963 and 1964 on sample plots in Clatsop County, Oregon

: Larvae from 10 beatings : Larvae from 5 beatings :			
Plot : of understory foliage : of understory foliage :			
no. :	August 1964	August 1963	Difference
- - - - - Number - - - - -			
8	27	51	-24
13	12	108	-96
14	7	58	-51
15	6	85	-79
17	28	40	-12
20	10	43	-33
Total	90	385	-295

Table 2.--Results of larval collections from five 18-inch
branches on each of five plot trees on plot 13
in 1963 and 1964, Clatsop County, Oregon

Tree no.	:	No. of larvae in 1964	:	No. of larvae in 1963	:	Difference
1		4		7		-3
2		3		23		-20
3		0		4		-4
4		0		10		-10
5		0		12		-12
Total		7		56		-49